



Green Schools News

EmPOWERing Maine Students to Know Their SOURCE



Spring 2006

Volume 6, Issue 2

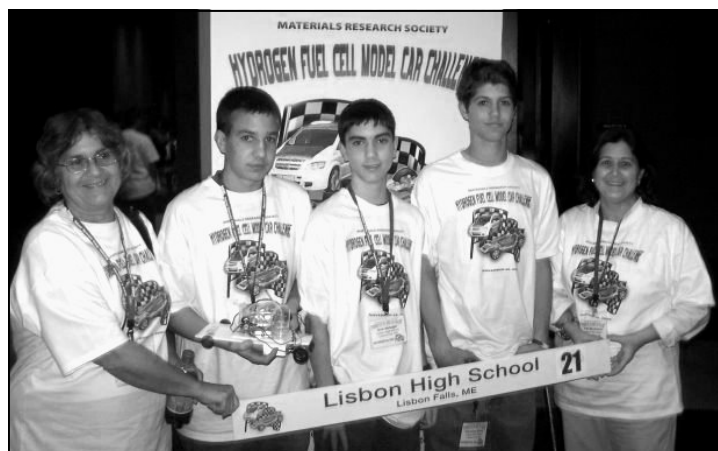
Students Compete in Hydrogen Fuel Cell Competition

In November, three Lisbon High School students ventured to Boston to compete in a Hydrogen Fuel Cell Car Competition. The students applied math, science, and engineering in designing their Fuel Cell Cars.

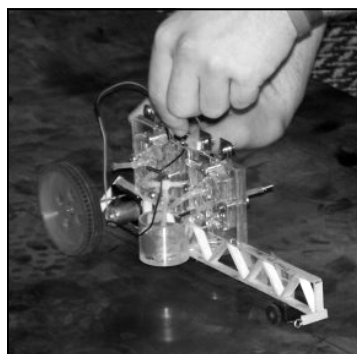
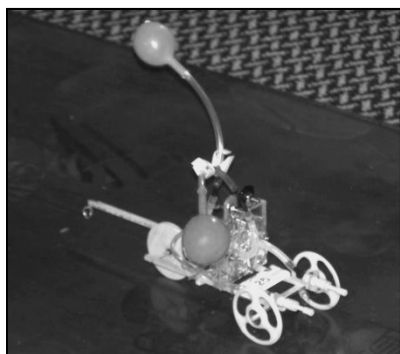
Creativity abounds in the materials and designs used, which are shown below. Old CDs and Styrofoam embraced the spirit of recycling, while balsa wood and balloons served as lightweight materials.

Teacher Patti Mendelson said that her ninth-grade students had a great time building and racing their fuel cell cars. To learn more about this program, which is open to High School students, please contact Linda Lung at:

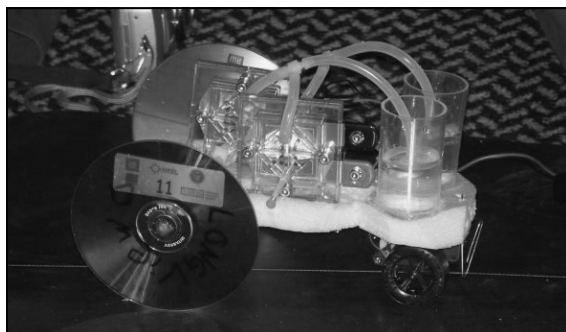
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Lisbon High School was represented by Veronica Koza, Dan Conlon, Erik Metzger, Cam Bubar, and Patti Mendelson.



Lisbon High School Hydrogen Fuel Cell Cars



MEEP is exploring FORMS OF ENERGY! Check out pages 4 & 5 for some fun LIGHT activities!

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Green Schools News is a publication of:

Maine Energy Education Program (MEEP) and the Maine Department of Environmental Protection, Air Bureau (MDEP)

Energy Savings Tips Contest Winners

During October, Energy Awareness Month, Efficiency Maine (Public Utilities Commission, PUC) and Maine's Office of Energy Independence and Security held a contest for Maine's 4th, 5th, and 6th grade students. Governor Baldacci awarded iPod Shuffles for the best energy saving ideas in two categories: 1) how to save energy in your own home; and 2) how your school can save energy. The following students and their energy savings tips were selected:

4th Grade

School: "More kids should bike or walk to school."

Corrinna Swanson, Manchester School, Windham

Home: "Turn (the) heat down when you leave the house."

Savannah Shurak, Bloomfield School, Skowhegan

5th Grade

School: "Use a fan instead of air conditioning to keep cool on warm days."

Brittany Page, Zippel Elementary School, Presque Isle

Home: "In your home you should put better insulation in your attic."

Meredith Potter, Guy E. Rowe Middle School, Norway

6th Grade

School: "You should power your school with solar panels."

Allie Macisso, Kennebunk Middle School

Home: "I think that motion detector sensors would be a great idea for inside houses; if there was not motion after 15 minutes the lights would be turned off automatically."



Back row (left to right): Joy Adamson, PUC; Rep. Gary Plummer; Governor Baldacci; Beth Nagusky, Governor's Office of Energy Independence and Security; Sen. William Diamond; and Denis Bergeron, PUC. Front row (left to right): Brittany Page, Allie Macisso, McKensy Brown, Savannah Shurak, Corrinna Swanson, and Meredith Potter.

CFL Fundraisers



Compact Fluorescent Lamps are the rage in energy conservation. Why, you ask?

- They can last up to 10 times longer than ordinary incandescent bulbs!
- They use less than a third of the electricity without sacrificing brightness!
- They screw into normal light sockets and come in three different wattages.

Contact MEEP today to learn how you can share the benefits of these energy savers while making money for your school!

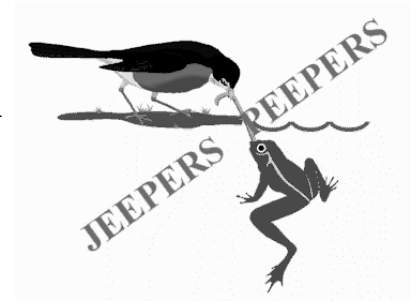
"Watts" on the Web?

- **www.energyquest.ca.gov**
The California Energy Commission invites you to check out their quiz games, energy time machine, and other great stuff on their interactive website.
- **www.windpower.org/en/kids/**
Learn all about wind power, including how turbines are built, how they work, and how efficient they are.
- **www.montanagreenpower.com/solar/schools/**
See how schools in Montana get their electricity from solar power!



Jeepers Peepers is Back!

Those of us living here in Maine have a sense of the 'rite' of winter's passage into spring. Yet we sometimes take for granted the "routine" of spring. The snow disappears and ice melts off the lakes. Flocks of robins return, hopping all over our lawns in search of a meal. The spring peeper chirps on warm, wet spring nights. And as we look around this landscape, we see the leaves of sugar maples first emerging and yellow dandelions sprinkled across fields, telling us other plants will soon follow in their glory. But did you know that some of these spring changes may be occurring earlier each year as global warming changes the Earth's climate? Changes in timing of spring events could have very serious consequences for animals, plants and people.



- The **Jeepers Peepers Spring Watch** allows upper elementary classes to track sightings of these harbingers of Spring.
- The **Jeepers Peepers Essay Contest** is open to students in 4-8 grade in Maine. The theme for this year's essays is Lake Ice Out. Essays will be judged by grade level. Winners will receive cool prizes for their classrooms and may have their articles published in Maine DEP's newspaper column, "In Our Back Yard."

To learn more about Jeepers Peepers or to register your class for the Spring Watch, please go to www.mainedep.com and click on the Jeepers Peepers link. For information about the Essay Contest, please contact Stefany Gregoire (287-7027, Stefany.Gregoire@maine.gov) or Tamara Whitmore (287-7663, Tamara.A.Whitmore@maine.gov) at Maine DEP.



Calling all teachers!

Have your students participated in an environmental project or taken initiatives to make your school greener? Contact MEEP to have your story shared with other Maine schools in an upcoming edition of the Green School News!

Energy Patrol



Forms of Energy: LIGHT

For the past decade, one of MEEP's main focuses has been *sources of energy*, for example: fossil fuels and solar power. With help from The NEED Project, we are now supporting the exploration of *forms of energy*, too. Here are some simple experiments about light energy that you can share with your students.



Brainstorming Activity



We use light every day in many different ways. The sun, our primary source of light energy, keeps our planet warm and helps plants grow. People use light bulbs to help them see at night, and doctors use lasers to operate on patients. We use candles during power outages, and emergency vehicles use colored lights to warn motorists when they need to pass. Draw or list as many light sources as you can, and identify whether they are natural or human-made. Here's an example to get you started:

Natural Light

Firefly



Human-Made Light

Car Headlights

Facts about Light

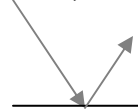


- Light is made up of particles called photons.
- Light is a form of radiant energy, that travels in waves:



- Rays of light move in straight lines until they come into contact with objects.
- Then, it can do one or all of the following:

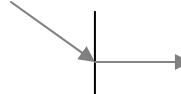
- **Reflect**, or bounce off the object



Examples:

A mirror
A shiny spoon

- **Refract**, or bend



Examples:

Water
A prism

- **Be absorbed** by the object



Examples:

A black t-shirt
Dark-colored hair



Classroom Activities: Reflection



You will need:

- Full-length Mirror
- Colored Pencils

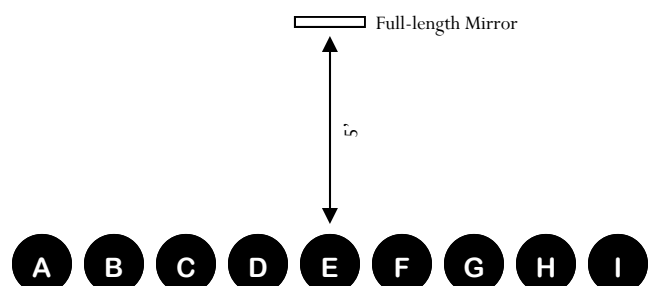
Step 1: Hang a mirror on the wall. Have nine students (labeled A through I) line up 5 feet from the wall, spaced one foot apart. Student E stands directly in front of the mirror as shown in the picture below.



Step 2: Now have each student look into the mirror and say who he or she can see. Using the diagram below, draw straight lines from each student to the mirror, and then to the student he or she can see. Use a different-colored line for each student.

Step 3: Now, rearrange the students so that they are different distances from the wall. Draw a diagram similar to the one at right and repeat Step 2.

Optional: If you are doing this experiment with older students, they can measure the angles of reflection with a protractor. What do they notice about these angles?





Classroom Activities: Refraction

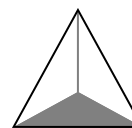


You will need:

- Prism
- Flashlight
- Colored Cellophane
- Colored Pencils

Step 1: Place the prism on a table so that one of its flat surfaces faces a white wall. Shine the flashlight into the prism and adjust it so that an image of colors projects onto the wall.

Step 2: Draw the colors of light as they come out of the prism.



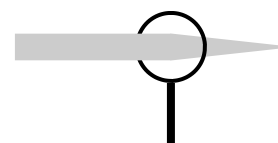
Step 3: Now place the colored cellophane over the flashlight and observe the differences in the colors produced. Try to hypothesize and explain what is happening. (White light is made up of the colors of the rainbow, and those colors are split when the light is refracted in the prism.)

You will need:

- Magnifying Glass
- Flashlight
- White Paper
- Ruler
- Penny

Step 1: Place the magnifying glass on its side on the table. Shine the flashlight through the convex lens from three inches away. Hold the paper up in the beam of light. Move the paper away from the lens until the beam of light becomes a sharp point.

Measure and record the distance between the paper and the magnifying glass.



Step 2: Place the penny on the table. Hold the magnifying glass three inches from your eye and move towards the penny until it is focused clearly. Measure the distance between the penny and the magnifying glass. How does it compare to the distance you measured in Step 1? Explain what happened.

Resources

The NEED Project, www.need.org.
All clipart images are from www.clipsahoy.com.

Maine Learning Results Standards

Science and Technology, Grades 3-4
• G-2, H-1, H-2, J-2, K-3, K-6



Classroom Activities: Absorption



You will need:

- Markers or crayons
- White Paper

If you have ever worn a black t-shirt on a hot summer day, you may have noticed that it made you very hot. If you wear a white t-shirt instead, does it make a difference? Try to form a hypothesis to explain why this happens.

Step 1: Color the objects below and then write which colors are being reflected back to your eyes. Remember the colors of the rainbow: Red, Orange, Yellow, Green, Blue, Indigo, and Violet.



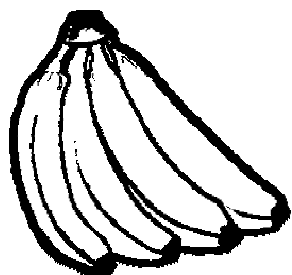
Pumpkin

Colors Reflected:



Black Cat

Colors Reflected:



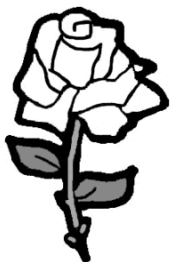
Bananas

Colors Reflected:



Milk

Colors Reflected:



Rose

Colors Reflected:



Leaf

Colors Reflected:

Why does the cat look black?

Why does the milk look white?

Do any of the objects reflect more than one color? Which ones?

2005 Maine Green Schools Photo Gallery



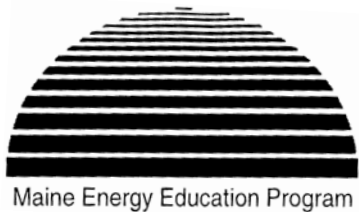
MEEP's New Prius!



Common Ground Fair

Electrathon 2005





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Spring 2006 Issue

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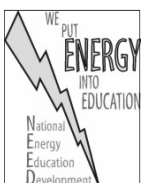
Students challenge their knowledge about energy with MEEP's free curriculum activities. Check inside for great ideas and happenings right here in Maine!

More Winning Energy Savings Tips:
4th grade, Home: "Don't run water when not using it and limit time in shower." Olivia Warner, Plummer Motz Elementary, Falmouth
5th Grade, School: "On sunny days, let the sun light up your room instead of using electricity." T. Overlock, Owls Head Central School, Owls Head
5th Grade, Home: "Riding our bicycles, walking, or driving a car that

gets good gas mileage to go places." Madeline L. Minor, LAMMS Homeschool, Winthrop
6th Grade, School and Home: "The teacher should appoint a student a week to have the job of turning off the lights when the class leaves the room for special, lunch, snack..." "Wash your clothes in cold water." Both tips submitted by Maya De Groote, Boothbay Region Elementary

Check out our website at www.meepnews.org

**The Maine Energy Education Program
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This issue of Green Schools News created by Jeremy Dubois
(SERVEMaine Volunteer, Maine DEP Bureau of Air Quality)

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